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NOTES ON SOME CALIFORNIAN GREEN ALGAE.—An examination of Collins' recent work on the green algae (F. S. Collins, "The Green Algae of North America," Tufts College Studies 2: 79-480. *pl.* 1-18. 1909) showed that two very characteristic species which have been collected in central California were not recorded for this state.

The first species is a *Spondylomorum*, probably *S. quaternarium* Ehrenb., the only recognized species of the genus, of which there seems to be no previous record for America. According to Wille (Volvocaceae, Engler & Prantl, Die Natürlichen Pflanzenfamilien, 12: 40. 1890), this species occurs only in Europe and Asia.

In 1896, Dr. W. R. Shaw, then instructor at Stanford University, collected at Pacific Grove, near Monterey, a quantity of this species. He made a number of slides, three of which are now in the collection of the University. The specimens agree in all respects with the figures and descriptions of *S. quaternarium*, but are somewhat smaller than the dimensions given by De-Toni in his Sylloge Algarum, where the size is stated to be 36-75 μ . The largest Californian specimens hardly exceed 40 μ in length. No further collections of *Spondylomorum* have come to my attention.

The second alga to be noted is *Pithophora oedogonia* (Mont.) Wittrock. This species has been collected several times in Felt Lake, a small body of water some four miles from Stanford University. The identification was made by Professor W. A. Setchell.

The species of *Pithophora* are for the most part tropical, but several species have been reported from stations in the eastern and central parts of the United States. So far as I know, the genus has not before been recorded from the Pacific Coast.

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REVIEWS

Hough's Leaf Key to the Trees

A little book of interest to teachers that has appeared recently is Mr. R. B. Hough's Leaf Key to the Trees.*

*R. B. Hough. Leaf Key to the Trees of the United States and Canada, and a Botanical Glossary, pp. 1-49. Published by the author, at Lowville, New York, Sept., 1910 Price \$.75

The book is "aimed to include all the generally accepted native and naturalized trees north of the latitude of the northern boundary of North Carolina, and east of the Rocky Mountains." The key as drawn up is based on the normal typical leaves, "such as we consider distinctive of the various species and by which we recognize them," . . . "the average specimens on a mature tree, not those on very young or excessively vigorous shoots." Fruit characters are also included in connection with some of the trees "either as essential or accessory parts of the key; though many species can readily be traced without referring to the fruits." The book is intended to supplement the more extensive publications on native trees,—“to enable one to have in a compact and systematic form an aid in the identification of trees by a study of their leaves”. The value of this little book to teachers lies in its availability as an aid for field work for older secondary students and for college students. Work on the identification of plants has a disciplinary value much higher than the amount of time usually devoted to it would seem to indicate. Trees offer probably by far the best medium for such work because of their size and usually the corresponding saliency of their distinctive characters, and also because of the greater interest attaching to them than to less conspicuous plants. Of course the value of any particular key for class work will depend in the end upon its workability in actual service, but those who are familiar with Mr. Hough's Handbook will not question his very high qualifications for the preparation of a practicable key. As a matter of fact an examination of his treatment of some of the difficult genera shows that it is as good as would be expected. The differentiation of the species of oak is particularly good. One omission there is which detracts somewhat from the ready usefulness of the key—this is the failure to cite any of the varying different distributions of the trees. So for the oaks, a resident of Massachusetts seeking to identify a red oak would have to decide between four species, one of which is native farther south but which, at least in leaf characters, the red oak may at times resemble. For example I have in mind two large oaks with large flat-saucered acorns growing in the Litchfield hills in

northwestern Connecticut, the leaves of which might key out at *Q. digitata*, a southern species. If, however, the range of *digitata* were indicated, its elimination would have been instant.

For many trees, however, this difficulty will not present itself and the book may be heartily recommended. Its size, about five by six and one half inches, and its flexible cover make it a convenient book to carry in the field.

RALPH C. BENEDICT.

Stevens' Diseases of Economic Plants

A new book entitled Diseases of Economic Plants, by F. L. Stevens and J. G. Hall,* of the North Carolina Agricultural Experiment Station, has recently appeared. This work is designed to meet the needs of those students who wish to recognize, wherever this can be done with any degree of certainty, and treat diseases of plants without the laborious process of a detailed microscopic study. Those characters are used in diagnosing diseases which are evident to the naked eye or through the aid of the hand lens, and technicalities are avoided so far as possible, thus making the text a usable one to the agricultural students of the lower grade. The work is confined mainly to the bacterial and fungous diseases.

The introductory chapters contain a brief historical sketch of the development of the science of phytopathology; also statistics regarding the damage caused by fungi, symptoms of disease, methods of preventing diseases, formulae of the various fungicides with directions as to the best methods of applying them, and a discussion of the cost and profit resulting from their use.

The body of the work is devoted to a description of the symptoms of the diseases of plants which are of economic importance with directions as to the best methods of controlling them. These diseases are classified according to the natural relationship of the hosts on which they occur and all of the diseases of a given host are treated under that host regardless of the relationships of the fungi which cause the diseases. The terms used in desig-

*Stevens, F. L., & Hall, J. G. Diseases of Economic Plants. Pp. i-ix + 1-513. f. 1-214. The Macmillan Co., New York, 1910. Price \$2.00.